

Rec'd PCT/PTO 03 JUN 2005

Sertifikaat

REPUBLIC OF SOUTH AFRICA

PATENT KANTOOR
DEPARTEMENT VAN HANDEL
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Certificate

IB 03/5484

REPUBLIEK VAN SUID-AFRIKA

PATENT OFFICE
DEPARTMENT OF TRADE AND
INDUSTRY

Hiermee word gesertifiseer dat
This is to certify that

MAILED 23 FEB 2004

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the documents annexed hereto are true copies of:

Application forms P.1 and P.3, provisional specification and drawings of
South African Patent Application No. 2002/9839 as originally filed in the
Republic of South Africa on 4 December 2002 in the name of BIOTRANS
UK LIMITED for an invention entitled: "PROTECTORS FOR PROTECTING
TIMBER POLES AGAINST SUBSOIL DECAY".

Geteken te

PRETORIA

Signed at

in die Republiek van Suid-Afrika, hierdie

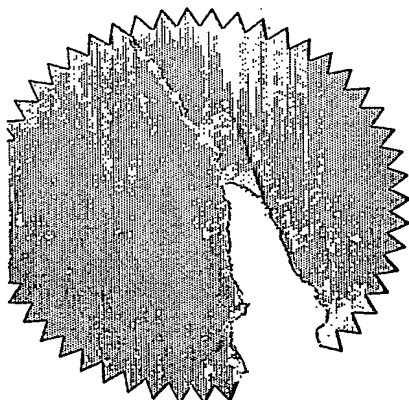
in the Republic of South Africa, this

5th

dag van

day of

February 2004



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**PRIORITY
DOCUMENT**

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REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978
APPLICATION FOR A PATENT AND
ACKNOWLEDGEMENT OF RECEIPT
(Section 30(1) Regulation 22)

SECTION 1 OF SOUTH AFRICA
(to be lodged in duplicate)

-412.02

R 060.00

THE GRANT OF A PATENT IS HEREBY REQUESTED BY THE UNDERMENTIONED APPLICANT
ON THE BASIS OF THE PRESENT APPLICATION FILED IN DUPLICATE

INKOMSTE
REPUBLIEK VAN SUID AFRIKA

21 01 PATENT APPLICATION

2002/9839

A&A REF HAS 15517 MR

71 FULL NAME(S) OF APPLICANT(S)

BIOTRANS UK LIMITED

ADDRESS(ES) OF APPLICANT(S)

"Cruachan", KELLAS by DUNDEE, DD5 3 PB, SCOTLAND, U.K.

54 TITLE OF INVENTION

"PROTECTORS FOR PROTECTING TIMBER POLES AGAINST SUBSOIL DECAY"

Only the items marked with an "X" in the blocks below are applicable.

☐ THE APPLICANT CLAIMS PRIORITY AS SET OUT ON THE ACCOMPANYING FORM P.2. The earliest priority claimed is
Country: **NIL** No: **NIL** Date: **NIL**

☐ THE APPLICATION IS FOR A PATENT OF ADDITION TO PATENT APPLICATION NO **21 01**

☐ THIS APPLICATION IS A FRESH APPLICATION IN TERMS OF SECTION 37 AND BASED ON
APPLICATION NO **21 01**

THIS APPLICATION IS ACCOMPANIED BY:

- ☒ A single copy of a provisional specification of 11 pages
☒ Drawings of 2 sheet(s)
☐ Publication particulars and abstract (Form P.8 in duplicate) (for complete only)
☐ A copy of Figure of the drawings (if any) for the abstract (for complete only)
☒ An assignment of invention
☐ Certified priority document(s). (State quantity)
☐ Translation of the priority document(s)
☐ An assignment of priority rights
☐ A copy of Form P.2 and the specification of RSA Patent Application No **21 01**
☒ Form P.2 in duplicate
☒ A declaration and power of attorney on Form P.3
☐ Request for ante-dating on Form P.4
☐ Request for classification on Form P.9
☐ Request for delay of acceptance on Form P.4
☒ Copy of Form P.1

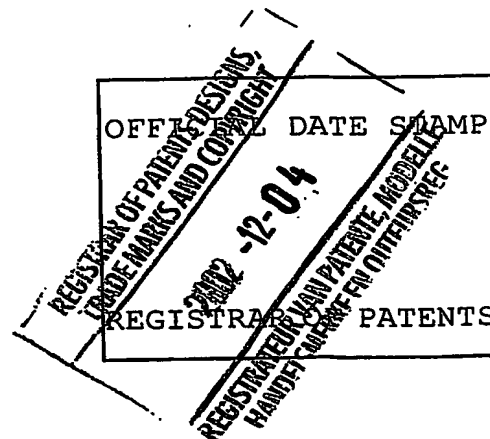
74 ADDRESS FOR SERVICE: Adams & Adams, Pretoria

DATED 3 December 2002

M ROTTEVEEL

ADAMS & ADAMS
APPLICANTS PATENT ATTORNEYS

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proof of lodging but is not valid unless endorsed with official stamp



PATENT APPLICATION NO		A&A REF: V15517 MR	LODGING DATE	
21	01	2002/9830	22	4 DECEMBER 2002

FULL NAME(S) OF APPLICANT(S)	
71	BIOTRANS UK LIMITED

FULL NAME(S) OF INVENTOR(S)	
72	1. BAECKER, Albin Alexander Wladyslaw 2. BEHR, Michael Robert

EARLIEST PRIORITY CLAIMED	COUNTRY	NUMBER	DATE
	33	NIL	31
		NIL	32
			NIL

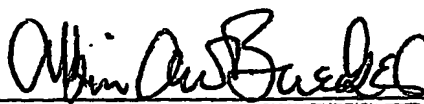
NOTE: The country must be indicated by its International Abbreviation - see schedule 4 of the Regulations

TITLE OF INVENTION	
54	"PROTECTORS FOR PROTECTING TIMBER POLES AGAINST SUBSOIL DECAY"

* I/We BAECKER, Albin Alexander Wladyslaw
hereby declare that :-

- * 1. ~~I/we am/are the applicant(s) mentioned above;~~
- ** 2. I/we have been authorized by the applicant(s) to make this declaration and have knowledge of the facts herein stated in the capacity of DIRECTOR of the applicant(s);
- *** 3. the inventor(s) of the abovementioned invention is/are the person(s) named above and the applicant(s) has/have acquired the right to apply by virtue of an assignment from the inventor(s);
- 4. to the best of my/our knowledge and belief, if a patent is granted on the application, there will be no lawful ground for the revocation of the patent;
- **** 5. ~~this is a convention application and the earliest application from which priority is claimed as set out above is the first application in a convention country in respect of the invention claimed in any of the claims; and~~
- 6. the partners and qualified staff of the firm of ADAMS & ADAMS, patent attorneys, are authorised, jointly and severally, with powers of substitution and revocation, to represent the applicant(s) in this application and to be the address for service of the applicant(s) while the application is pending and after a patent has been granted on the application.

SIGNED AT WESTVILLE THIS 2nd DAY OF DECEMBER 2002


SIGNATURE(S)
(no legalization necessary)

- * In the case of application in the name of a company, partnership or firm, give full names of signatory/signatories, delete paragraph 1, and enter capacity of each signatory in paragraph 2.
- ** If the applicant is a natural person, delete paragraph 2.
- *** If the right to apply is not by virtue of an assignment from the inventor(s), delete "an assignment from the inventor(s)" and give details of acquisition of right.
- **** For non-convention applications, delete paragraph 5.

A & A Ref No: V15517 MR

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PATENT ATTORNEYS
PRETORIA

FORM P6

REPUBLIC OF SOUTH AFRICA
Patents Act, 1978

PROVISIONAL SPECIFICATION
(Section 30 (1) - Regulation 27)

21	01	OFFICIAL APPLICATION NO
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2002/9839

22	LODGING DATE
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04 DECEMBER 2002

71	FULL NAME(S) OF APPLICANT(S)
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BIOTRANS UK LIMITED

72	FULL NAME(S) OF INVENTOR(S)
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- 1. BAECKER, Albin Alexander Wladyslaw**
- 2. BEHR, Michael Robert**

54	TITLE OF INVENTION
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"PROTECTORS FOR PROTECTING TIMBER POLES AGAINST SUBSOIL DECAY"

32002/9839

THIS INVENTION relates to protectors for protecting timber poles against subsoil decay.

It is known, as a method of primary pre-treatment of a timber pole to be supported in a body of soil, to apply a protector in the form of a field liner, to the pole, for covering the region of the pole that will be disposed within the soil body. A known field liner comprises a sleeve, of a synthetic plastics material, which, in use, fits snugly around the pole along the region of the pole to be covered, the known method of fitting this field liner on a pole providing for the sleeve to be heat shrunk on the pole.

The synthetic plastics material forming a field liner generally is a liquid impermeable, non-biodegradable material such as polypropylene, or a low density polyethylene. By its application on a pole it covers the optimal fungal growth region of the pole, thereby regulating at sub-optimal levels the air and moisture content of the said region, and isolating it from nitrogenous compounds that exist in soil, all of which are required for fungal growth to occur. The field liner thus specifically prevents fungal growth from occurring. Since it is applied in the form of a sleeve, of which the operative lower end is open, the transverse surface of the butt of the pole remains uncovered and by not encapsulating the butt, it cannot become anaerobic and, as such, the field liner also prevents subsoil decay by anaerobic bacteria.

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The heat shrink method of applying a field liner on a pole, although effective, has proved to be difficult to carry out in practice, particularly in a cheap and time efficient manner and it is thus an object of this invention to provide a field liner in respect of which the application on a pole is facilitated.

It has also been found that preservatives in standing poles migrate downwards through outer sapwood vessels and are then lost to the soil by leaching from the poles, particularly from longitudinal and transverse faces of the poles near the butt ends thereof and that are in soil contact. The preservative loss is reduced by known field liners, but it remains an object of this invention to ameliorate the problem of preservative loss still further.

According to a first aspect of the invention there is provided a field liner for protecting a timber pole against subsoil decay, comprising a sheet element in the form of a laminate structure including a first layer of a flexible, liquid impermeable, non-biodegradable synthetic plastics film material that contains a dry film biocide therein and a second layer of a flexible, liquid impermeable, non-biodegradable synthetic plastics film material that has tear resistance qualities, the sheet element being configured to permit winding around a pole for covering the region of the pole to be protected and having an adhesive medium applied thereto which permits the secure location of the sheet element on a pole when wound on the pole.

The sheet element particularly defines a rectangular configuration with the adhesive medium being applied as an adhesive strip along one operatively longitudinal edge region thereof, the adhesive strip permitting adherence when fully wound on a pole.

The sheet element may be provided on a roll and it is particularly envisaged in this regard that a roll may include a plurality of such sheet elements that are separated by perforations that permit separation of individual sheet elements from the roll.

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The invention clearly extends also to such a roll that includes a plurality of field liners, in accordance with the first aspect of the invention, separated by perforations.

According to a second aspect of the invention, there is provided a field liner for protecting a timber pole against subsoil decay, comprising a sheet element in the form of a laminate structure including a first layer of a flexible, liquid impermeable, non-biodegradable synthetic plastics film material that contains a dry film biocide therein and a second layer of a flexible, liquid impermeable, non-biodegradable synthetic plastics film material that has tear resistance qualities, the sheet element defining a sleeve-like body that has the first layer of material forming the inside thereof and the second layer of material forming the outside thereof and that permits loose location on a pole for covering the region of the pole to be protected and hence wrapping around the pole into a tight configuration and having an adhesive medium applied externally on the second layer that permits secure location of the sheet-like element on a pole when wrapped around the pole.

The adhesive medium again may comprise an adhesive strip located along the operative length of the sheet-like element, i.e. along the operative length of the sleeve-like body defined by the sheet-like element.

According to a preferred embodiment of the field liner of the second aspect of the invention, one end of the sleeve-like body defined by the sheet element is at least partially sealed to form a pocket that facilitates the required location of the field liner on a pole for covering the region of the pole to be protected and hence wrapping of the sheet element around the pole and securing thereof on the pole by the adhesive medium. When so partially sealed, the pocket formed will have an opening therein that, in the operative configuration of the field liner on a pole will still permit water drainage from the field liner as hereinafter explained.

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Field liners, in accordance with the second aspect of the invention, also can be provided in a roll form with a plurality of such field liners being separated by suitable perforations that permit separation of individual field liners from the roll.

The invention extends again to such a roll including a plurality of field liners, in accordance with the second aspect of the invention, that are separated by perforations.

For field liners, in accordance with both the first aspect and the second aspect of the invention, the first layer of the sheet element may be formed of polypropylene film, or of any other like suitable synthetic plastics material. The dry film biocide may provide for the protection of the sheet element against preservative-resistant microorganisms. The material forming the said first layer of the sheet element also may contain an insecticide compound therein that can protect the sleeve against termite attack, a typical insecticide compound being the pyrethroid insecticide, Deltamethrin.

Also for field liners in accordance with both the first aspect and the second aspect of the invention, the second layer of the shield element may be of low density polyethylene (LDPE), high density polyethylene (HDPE), or the like. The material forming the second layer also may contain an insecticide compound that can protect the sheet element against termite attack, a typical insecticide compound again being the pyrethroid insecticide, Deltamethrin.

A field liner that includes a sheet element of materials as hereinabove defined is particularly suitable for use on poles containing a water borne wood preservative, such as copper-chrome-arsenate, and the like. Particularly for such a field liner, the second layer of material may be of high density polyethylene which, following application of the field liner on a pole, with a segment of the field liner extending beyond the butt of the pole, permits crimping around the said butt of the pole, particularly for the purpose that is described in more detail hereinafter.

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The sheet element of a field liner, in accordance with both the first aspect of the invention and the second aspect of the invention, also may include a third layer formed of a flexible aluminium film that is vapour impermeable and that is laminated between the said first layer and the said second layer of the sheet element of the field liner. The said third layer renders the sleeve resistant to fume penetration and, as such, the field liner is rendered particularly suitable for use on poles containing oil borne wood preservatives such as creosote, pentachlorophenol, and the like. For such a field liner, the aluminium film provides the sheet element with crimping qualities as hereinabove envisaged.

The adhesive medium applied both to the field liner of the first aspect of the invention and the field liner of the second aspect of the invention may comprise an adhesive sealant and, prior to use, may be covered by a peel-off strip that can form a part of the field liner and that can be peeled off prior to or during application of the field liner in order to provide for the secure location of the field liner on a pole, by adhering the sheet element onto itself when tightly wound or wrapped around a pole.

The effective operative length of the sheet element of the field liner, in accordance both with the first aspect of the invention and the second aspect of the invention, may be determined by the region of the pole to be covered thereby, being at least the region of the pole to be disposed sub-soil, in the operative configuration of the pole. The length of the sheet element also may be such that the sheet element, in the operative configuration thereof, when secured on a pole, can extend beyond the butt of the pole as hereinabove envisaged.

The invention extends also to a field liner, in accordance both with the first aspect of the invention and the second aspect of the invention, in combination with a pole, in which the field liner is applied to the pole. The mode of application of the field liner on the pole clearly is determined by the configuration of the field liner which, when merely in the form of a sheet element, is tightly wound around the pole, and when in the form

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of a sleeve-like body, is located over the pole and then wrapped around the pole. The adhesive medium provides for the secure location of the field liner so wound or wrapped around a pole.

Further features of the field liner of the invention are described hereafter, with reference to examples of field liners in accordance with the respective aspects of the invention, that are illustrated in the accompanying diagrammatic drawings. In the drawings:

Figure 1 illustrates in three dimensions the configuration of a field liner for protecting a timber pole against subsoil decay, in accordance with the first aspect of the present invention, and its mode of application onto a timber pole;

Figure 2 shows in side view a first embodiment of a portion of a sheet element for forming a field liner, in accordance with both the first aspect and the second aspect of the present invention;

Figure 3 shows in side view a second embodiment of a sheet element for forming a field liner, both in accordance with the first aspect and the second aspect of the present invention; and

Figure 4 illustrates in three-dimensions the configuration of a field liner for protecting a timber pole against subsoil decay, in accordance with the second aspect of the present invention, and its mode of application onto a timber pole.

Referring initially to Figures 1 to 3 of the drawings, a field liner for protecting a timber pole against subsoil decay, in accordance with the first aspect of the present invention, is designated generally by the reference numeral 10. The field liner 10 comprises a sheet element 11 that defines a substantially rectangular configuration and that is separable from a roll 13 including a plurality of such field liners.

Particularly, a field liner 10 is separable from the roll 13 by severing the field liner from the roll 13 along a line defined by perforations 12.

The sheet element 11 has a strip 14 of an adhesive sealant applied thereto along the operative length thereof, adjacent the operative longitudinal edge 16 thereof, the adhesive sealant having a peel-off strip 17 applied thereto, for covering the strip 14 while the sheet element 11 forms a part of the roll 13.

The sheet element 11 forming the field liner 10 is in the form of a laminate structure, one particular embodiment of this laminate structure, as shown in Figure 2, including a first layer 18, that is formed of a flexible, liquid impermeable, non-biodegradable synthetic plastics film material such as of polypropylene film, a second layer 20, that is formed of a flexible, liquid impermeable, non-biodegradable synthetic plastics film material that has tear resistance qualities such as low density polyethylene film and a third layer 22, of a flexible aluminium film that is vapour impermeable and that is laminated between the first layer 18 and the second layer 20.

An alternative embodiment sheet element 11 is illustrated in Figure 3 of the drawings and includes only a first layer 24 and a second layer 26 that are the equivalent of the layers 18 and 20 respectively and that are laminated directly onto one another. The material forming the layers 18 and 24, respectively, of the two embodiments of the sheet element 11 contain a dry film biocide therein and, optionally, also an insecticide compound such as the pyrethroid insecticide, Deltamethrin. The materials forming the respective layers, 20 and 26, of the two embodiments of the sheet element 11 also may have an insecticide compound contained therein which, again, may be the pyrethroid insecticide, Deltamethrin.

In order to apply the field liner 10 to a timber pole 30, a sheet element 11 forming the field liner 10 is first separated from a roll 13 (see Figure 1B), whereafter it is placed on a substantially planar work surface, where the timber pole is placed on the sheet

element 11 (see Figures 1C and 1D). The peel-off element 17 is then removed from the adhesive strip 14 (see Figure 1E), whereafter the sheet element 11 is wound onto the timber pole 30, until fully wound thereon (see Figures 1E and 1F). Thereafter, the adhesive sealant serves to secure the sheet element 11 on the pole 30.

The effective length of the sheet element 11 forming the field liner 10 particularly is such that it covers the entire region of the pole 30 that will be disposed subsoil, in use, while extending also beyond the butt 32 of the pole, as is clearly illustrated. The segment of the sheet element 11 extending beyond the butt of the pole can then be crimped to cover partially this butt of the pole (see Figure 1G), this crimping being facilitated by the aluminium film 22, if the sheet element 11 is formed of layers as shown in Figure 2. If the sheet element 11 is of the configuration as shown in Figure 3, the layer 26 can be formed of high density polyethylene film, particularly such a film that will permit crimping also.

A field liner formed of a sheet element as shown in Figure 2 is particularly suitable for use on poles containing an oil borne wood preservative such as creosote, pentachlorophenol, or the like, the aluminium film being vapour impermeable and thus resisting fume penetration. A field liner formed of a sheet element as shown in Figure 3 is particularly suitable for use on poles containing a water borne wood preservative, such as copper-chrome-arsenate, or the like, in respect of which fume penetration is not a factor and an aluminium film is thus not required.

Crimping of the field liner over the butt of a pole particularly serves to at least reduce leaching of preservative from the pole when disposed in its operative upright configuration in a body of soil, the remaining aperture 40, that is still defined, permitting water drainage and hence ensuring that the butt of the pole cannot become anaerobic and thus be exposed to subsoil decay by an aerobic bacteria.

Referring now to Figure 4 of the drawings, a field liner for protecting a timber pole against subsoil decay, in accordance with the second aspect of the present invention, is designated generally by the numeral 50. The field liner 50 is formed of a sheet element 52 that forms a sleeve-like body (see Figure 4C), the sleeve-like body, when disposed in a flat configuration as shown in Figures 4A and 4B, having a strip 54 of an adhesive sealant applied thereto along a longitudinal edge thereof. The strip 54 is covered by a peel-off strip 55 which can be removed from the field liner prior to the application thereof onto a pole (see Figure 4B). One end 56 of the field liner 50 is partially sealed, the field liner 50 thus forming an effective pocket that has a hole 58 therein, as is shown clearly in Figure 4C.

It is envisaged that the field liner 50 can be provided as a separate unit or, alternatively, in a roll form from which individual field liners are separable. The effective length of the sleeve-like body is such that the field liner 50 can cover the area of a pole to be protected by being located over the pole, the partially sealed end 56 of the sleeve-like body facilitating the required location of the field liner 50 on a pole.

It will be appreciated that the effective diameter of the sleeve-like body is substantially larger than that of a pole on which the body is to be located, this being apparent from Figures 4C and 4D. For the application of the field liner 50 on a pole 60, the pole 60 is inserted into the sleeve-like body until the butt of the pole bears against the sealed end of the sleeve-like body. The sleeve-like body is then wrapped tightly around the pole, whereafter the strip 54 of the adhesive sealant can serve to secure the field liner on the pole. Crimping of the excess material provided adjacent the butt of the pole can again be effected in order to cover this butt of the pole in a configuration in which leaching of preservative from the pole, while the pole is disposed in an operative upright configuration in a soil body, is effectively reduced. An opening 64 again remains in order to permit required water drainage and, thereby, prevent subsoil decay of the pole by anaerobic bacteria as hereinabove envisaged.

It must be appreciated that the specific configuration of the field liners of both the first aspect of the invention and of the second aspect of the invention are greatly variable, while still incorporating the essential features of the two field liners which facilitate the convenient application thereof onto timber poles. Also, the material types forming the layers of the sheet element of which the field liners are formed are greatly variable and particularly will be determined by particular applications of field liners and particular conditions to which poles having field liners fitted thereon may be exposed, in use.

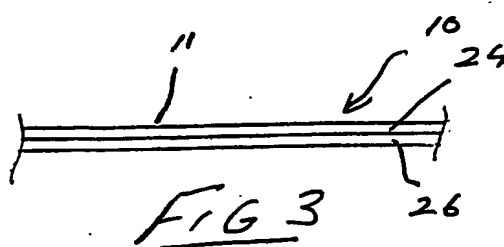
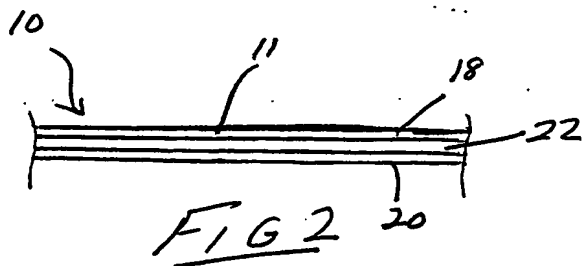
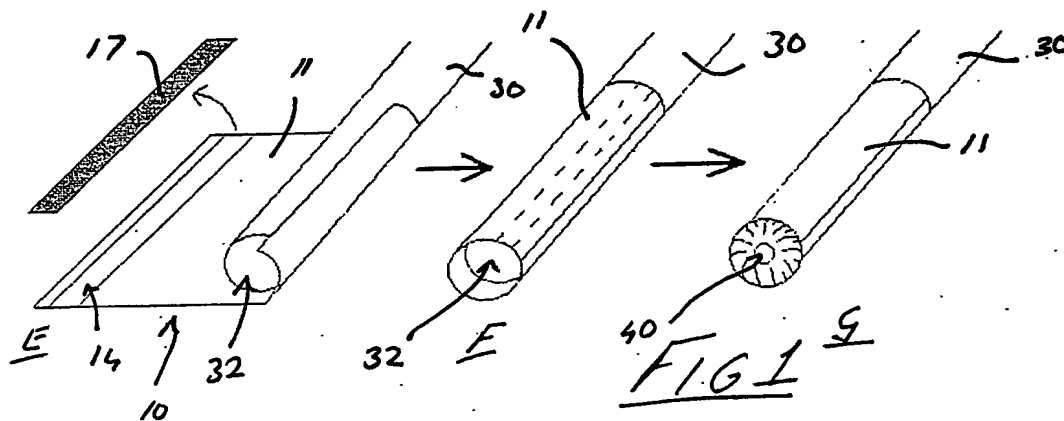
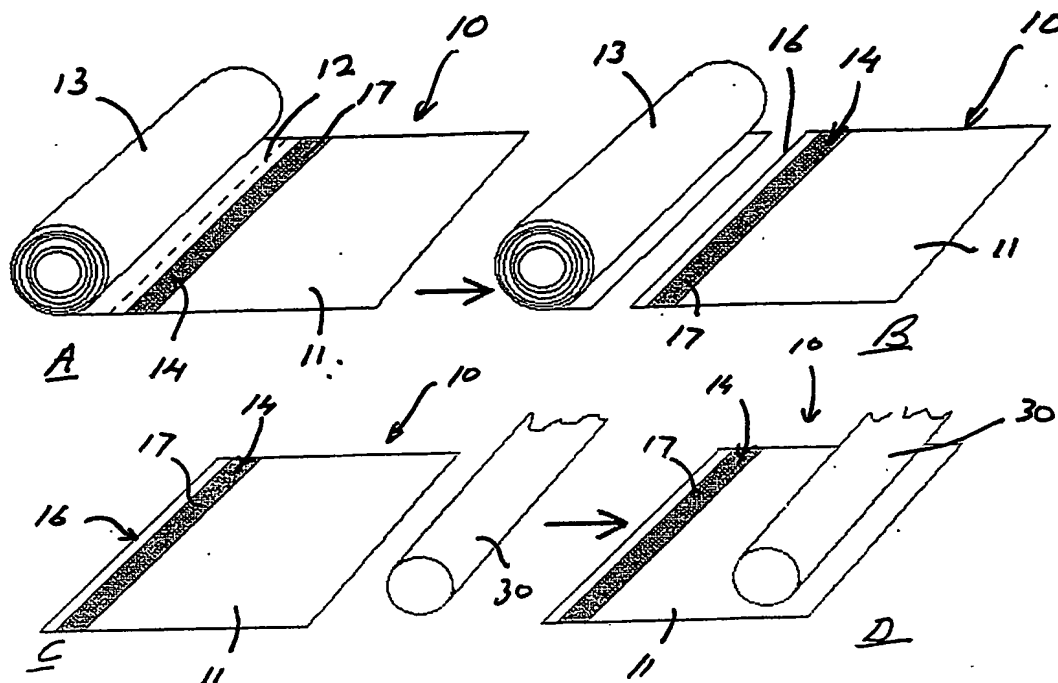
The field liners as described render application onto poles significantly easier and quicker when compared with the application of known field liners onto poles, thus facilitating the use of field liners and the provision of field liners, e.g. in a roll form, or the like.

DATED THIS 3RD DAY OF DECEMBER 2002



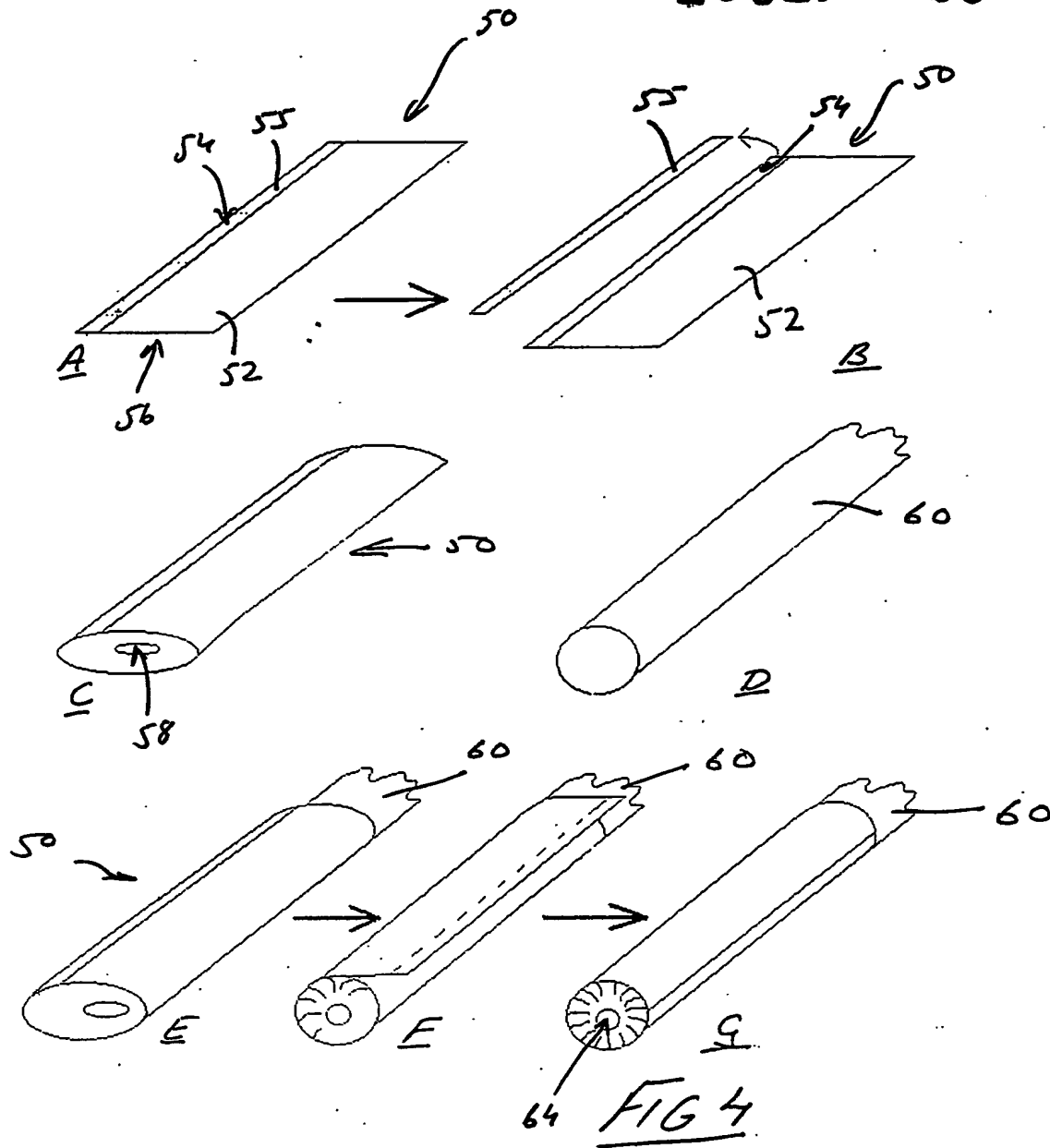
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